UNITED
NATIONS

A

General Assembly

Distr.
GENERAL

A/CONF.151/PC/100/Add.9
13 December 1991

Original: ENGLISH

PREPARATORY COMMITTEE FOR THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT
Fourth Session
New York, 2 March - 3 April 1992
Item 2 (c) of Plenary Session

PREPARATIONS FOR THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT ON THE BASIS OF GENERAL ASSEMBLY RESOLUTION 44/228 AND TAKING INTO ACCOUNT OTHER RELEVANT GENERAL ASSEMBLY RESOLUTIONS:

TRANSFER OF ENVIRONMENTALLY SOUND TECHNOLOGY

(Section IV, Chapter 2 of Agenda 21)

Report of the Secretary-General of the Conference

INTRODUCTION

1. This document was prepared by the Secretary-General of the Conference in response to decisions of the third Preparatory Committee in particular to A/CONF.151/PC/L.49* and A/CONF.151/PC/L.53, and the discussions on A/CONF.151/PC/53. All text between double asterisks (**) has either been taken from or is based on A/CONF.151/PC/L.53.

2. **(L.53, page 2, paragraph 2) < The overall objectives of the following programme areas are to promote, facilitate and finance the transfer of environmentally [safe and] sound technologies[1] including on concessional and preferential terms, without prejudice [to the protection of intellectual property rights or] to specific commitments and arrangements on transfer of technology to be adopted in specific international instruments regarding the protection of the environment. >**

GE.91-63036/4077B

92-03324

3. The purpose of this chapter is to propose the mechanisms aimed at promoting the transfer of environmentally sound technologies that will enhance the transition to sustainable development. Inherent in these mechanisms is the need to address the improvement of technologies currently used and the replacement of less environmentally benign technology. The overall objective is to improve capacity building, in order to promote national transition policies that are economically and socially feasible.

PROGRAMME AREAS

A. IMPROVING ACCESS TO ENVIRONMENTALLY SOUND TECHNOLOGY INFORMATION, PROPRIETARY OR OTHERWISE

Basis for Action

4. The development of and access to scientific and technological information is one of the essential requirements in the transition towards sustainable development. Providing adequate information on the environmental aspects of technologies consists of two interrelated components: upgrading information on present technologies, including their environmental risks, and improving access to environmentally sound technologies.[2] The primary goal of improved access to technology should be to support countries' efforts to develop and strengthen their own technological capacities. One possible constraint to availability of environmentally sound technologies in developing countries is patent protection restrictions. However, a large body of useful technological knowledge lies in the public domain and is unaffected by the international patent system. Also, most proprietary technology is available through commercial channels and international business is an important vehicle for technology transfer. Tapping this pool of knowledge and recombining it with local innovations to generate alternative technologies should be pursued. At the same time, access to the latest environmentally sound technologies by developing countries should be ensured, providing fair incentives to innovators that promote research and development of new environmentally sound technologies.

Objectives

5. **(L.53, page 2, paragraph 2-(b) and (c)) < To ensure the access, particularly of developing countries, to scientific and technological information, including state-of-the-art technologies. >**

6. To promote assured access for developing countries to environmentally sound technologies, in its relation to proprietary rights, and to develop effective responses.

Activities

Establish International Information Networks through Active Regional Clearing Houses:

7. Develop existing national, regional and international information systems, and network them through the establishment of active regional clearing houses covering broad-based sectors of the economy, e.g. agriculture,

industry, energy, etc. The clearing houses would disseminate information on available technologies, their sources, and broad terms under which they may be acquired.[3,4,5] They should operate on an information demand basis. United Nations agencies such as the WIPO, UNIDO, UNEP, UNDP, UNCTC and UNCSTD could take the lead in coordinating such activities, taking into account positive roles to be played by business communities, trade association and NGOs.

8. The international and regional clearing houses would constitute information networks for exchange of information. When international clearing houses already exist, they should be strengthened through regional activities. Their scope, programmes and mobilization of resources could be determined by international consultative groups. In order to be effective, the clearing houses need to provide not only information, but referrals to other services and technology assessment.

[Cross-reference to chapters on information, capacity building]

Support and Promote Proprietary Information Acquisition Systems:

9. Include the use of patent-protected environmentally sound technologies, wherever possible, under the obligations of global environmental conventions. Developing countries could be exempted from implementing the agreed technologies until the patent expires, or until financial arrangements can be established to cover the implementation burden of developing countries, as in the case of the Montreal Protocol on Ozone Depleting Substances.

10. **(L.53, page 3, para 2 (d)) ‹

Purchase [appropriate] [environmentally [safe and] sound technology] patents for their transfer to developing countries on non-commercial terms [as part of aid packages].[6]

[Purchase patent licences on commercial terms for their transfer to developing countries on non-commercial terms.]

[Facilitate the transfer of intellectual property rights between countries where such action is essential to the success of a project.]

[Facilitate transfer of appropriate technologies including intellectual property rights to the developing countries in various modalities as part of aid activities.] ›**

Means of implementation

11. An inventory of existing and international or regional clearing houses or information exchange systems should be undertaken under the auspices of an international group of experts. The existing structure should be strengthened and improved when necessary. Additional information systems should be built if necessary, in order to complete this international network.[7] To the fullest extent possible, the international networks should strive to support the implementation of global conventions on the environment that are under negotiation or already ratified by Member States.

12. The financial resources necessary to implement the international networks would be derived from a selection of existing funds and those to be additionally established. The running costs for the international information networks would amount to approximately US$ 150 - 200 million to be borne by the international community per year.

13. The funds required for the implementation of paragraph 9 will be defined and derived from the financial arrangements which will be agreed upon by Governments as part of negotiated conventions and/or protocols.

[Cross-reference to chapters on atmosphere and biodiversity.]

14. The acquisition of proprietary rights as described in paragraph 10 might occur in the context of bilateral and multilateral aid programmes. In such situations every effort should be made to acquire the required environmentally sound technology in accordance with established procedures for transactions of this nature. [Should efforts fail, the process of compulsory acquisition might be activated, the cost of such acquisition being assumed in the aid budget provided by the bilateral or multilateral donor.][8]

15. Given the nature of acquiring proprietary rights and the lack of actual experience, there are no solid grounds for estimating the costs of such procedures. However, for the initial few years, a pilot project based on this activity might be expected to cost US$ 100 million per year.

B. IMPROVING CAPACITY TO DEVELOP AND MANAGE ENVIRONMENTALLY SOUND TECHNOLOGIES

Basis for Action

16. Effective transfer of environmentally sound technologies requires additional support to recipient countries to help further develop their scientific, technological, professional and related institutional capacities taking into account existing technologies and capacities in recipient countries.[9] This support would enable developing countries to make more rational technology transfer choices. These countries could then better assess environmentally sound technologies prior to their transfer and then properly apply and manage them, as well as improve upon already present technologies and adapt them to suit their specific development needs and priorities.

17. The transfer and development of environmentally sound technologies could better be achieved through a long-term partnership between the suppliers and recipients of technology. This would benefit both the former, who are not prepared for technology transfer and could be better organized through this arrangement, and the latter, whose effectiveness and efficiency of general development would increase. In such a partnership, attention should be given to the transfer of environmentally sound technologies both from developed to developing countries, as well as from developing to developed countries and among developing countries. A long-term partnership in technology cooperation necessarily requires systematic training over a period of time.

Objectives

18. **(L.53, page 2, the second paragraph 2-(a)) < To support the development of endogenous capacity building in developing countries, through, inter alia, the development of human resources and the strengthening of institutional capacities in R & D on the basis of country and sector assessment of the technology needs, in accordance with the plans, objectives and priorities of these countries >** as foreseen in the national implementation of Agenda 21.

19. **(L.53, page 3, paragraph 2-(g)) < To facilitate the maintenance and promotion of environmentally sound and indigenous technologies in developing countries that may have been neglected or displaced, >** paying particular attention to addressing primary sector needs and taking into account the complementary economic role of men and women.

20. **(L.53, page 3, paragraph 3) < To promote long-term technological partnerships between the holders of environmentally sound technologies and potential users in developing countries. >**

Activities

Establish a global framework for Technology Transfer

21. Formulate government policies which take the environment into account and which provide specific incentives to encourage the use of environmentally sound technologies. Governments should examine its own policies to determine whether subsidies, tax policies or regulation encourage or impede the introduction of these technologies.

22. Establish a global framework for the development, transfer and partnership of environmentally sound technologies with a special focus on developing country needs, primarily by adding such functions to already existing bodies.[10] This framework could be guided by a global task force that would include national Governments, international institutions, industries and independent experts.[11] The function of the global task force would be to provide overall guidance to the system and select areas of concentration, taking into account ongoing programmes and gaps in coverage.

Establish National Task Forces

23. Establish national task forces, ensuring gender and ethnic diversity of composition, and serviced by national secretariats.[12] As with the global task forces, their functions could be performed by already existing bodies. An important function is to stimulate potentially interested parties and to expedite the generation and processing of the national funding required.

Establish Collaborative Network of International Research Centres

24. Establish a collaborative network of existing regional international research centres on environmentally sound technology to enhance the development, management and transfer of environmentally sound technologies, including transfer among developing countries and between developed and

developing countries, primarily based on existing regional research, development and demonstration centres which are linked with the national institutions.[13]

Support programmes of cooperation and assistance

25. **(L.53, page 3, para 5) < Support programmes of cooperation and assistance including those provided by United Nations agencies and international organizations to developing countries in the field of research and development, technological and human resources capacity building in the fields of training, maintenance and environmental impact assessments. >**

26. **(L.53, page 4, para 7) < Support regional and national programmes of scientific research, dissemination of information and technology development among developing countries, including through the involvement of both public and private enterprises and research facilities, as well as funding for TCDC programmes in this area. >** This should include developing links among these facilities to maximize their efficiency in understanding, disseminating and implementing technologies for sustainable development.

Technology Assessment based on Management of Environmentally Sound Technologies

27. The international community, in particular United Nations agencies and international organizations should help **(L.53, page 2, para 2 (c)) < exchange experiences and develop capacity for technology assessment and environmental impact and risk assessment of technology, in particular in developing countries, to enable them to make choices based on environmentally [safe and] sound technologies. >**

28. Build up technology assessment capability for the management of environmentally sound technology with due regard to **(L.53, page 3, para 2 (e)) < safeguards on the transfer of technologies, especially new technologies, which are subject to restriction or prohibition on environmental or health grounds in the country of origin >**, development of full cost accounting and environmental evaluation in public interest.

29. Establish an international network of regional or national environmentally sound technology assessment centres, coupled with regional clearing houses, to tap the technology assessment sources mentioned above for the benefit of Member States.[14] The possibility of assigning this activity to already existing regional organizations should be fully explored before creating entirely new institutions.

Promote long-term collaborative arrangements

30. Promote long-term collaborative arrangements between developed and developing country enterprises for the development of environmentally sound technologies, with due regard to the technological needs of both genres. Multinational companies have a special role and interest in accelerating technology transfer, as they are effective channels for such transfer, and for building a trained human resource pool and infrastructure.

31. Promote joint ventures between suppliers and recipients of technologies, taking into account developing countries' objectives and policies. Together with direct foreign investment, these ventures could constitute important channels of transferring environmentally sound technologies. Through such long-term partnerships by joint ventures and direct investment, sound environmental management practices could be transferred and maintained.

32. **(L.53, page 4, paragraph 9) < Incorporate mechanisms for the transfer of environmentally sound technologies to developing countries in negotiating an International Code of Conduct on Transfer of Technology. >**

33. **(L.53, page 3, paragraph 2-(f)) < Sponsor visits and facilitate the permanent return of qualified experts from developing countries in the field of environmentally [safe and] sound technologies who are currently working in developed country institutions. >**

Means of Implementation

34. A very rough estimate of costs to be borne by the international community for the activities in paragraphs 21 to 26 would be US$ 250-300 million per year.[15]

35. A very rough estimate of costs for the activity in paragraphs 27 to 29 would be US$ 50 - 100 million per year.

36. The activities in promoting long-term collaborative arrangements in paragraphs 30 to 33 do not involve international financing on a concessional basis.

37. The development of global and regional programmes for respective task forces will include identification and evaluation of regional and national need-based priorities.[16] Supporting documents should provide the basis for potential financing by multilateral banks participating in the task forces, bilateral organizations, private sector interests and NGOs.

38. A major resource for implementing the activities in paragraphs 27 and 28 is the knowledge and experience existing in the technology assessment organizations and networks previously mentioned. A range of financial resources would be required to support the establishment of the proposed regional environmentally sound technology assessment centres and the development of national centres. This would include financial resources from existing facilities, new international facilities, regional organizations, Governments, foundations and corporations, as well as those in kind.

Explanatory Notes

Note 1:

There is no universally agreed upon concept of environmentally sound technology. The environmental soundness of technologies is a relative rather than absolute term, depending on technical and economic conditions as well as the levels of environmental standards. Environmentally sound technologies are less polluting, less energy and resource intensive, use renewable resources in a more sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable manner than the technologies for which they were substitutes. They thus cover both "end of pipe" or treatment technologies and low- and non-waste or, more generally, cleaner production technologies. Environmentally sound technologies are not just individual technologies, but total systems which include know-how procedures, goods and services, equipment as well as organizational and managerial procedures. In defining environmentally sound technologies there is a need to integrate social dimensions, including gender relevant aspects. For example, it is well documented that new technologies often have a negative effect on women. Therefore, before new technologies are transferred a gender impact assessment should be made.

Note 2:

A considerable amount of scientific, technological and economic information on environmental matters is currently available on numerous national and international data bases, notably that of the patent information and those within the United Nations system. The expected increase in demand for information on environmentally sound technologies and their relative costs and benefits, however, will require a strengthening of existing initiatives as well as the development of new ones.

Access to information is a necessary but not a sufficient condition for technology transfer. Crucial to the effective provision of information is the capacity for recipients to make use of it.

There are many different means by which technological assets can be transferred. Included among these are foreign aid, direct foreign investment, joint ventures, licensing agreements, turnkey contracts, service contracts and technical assistance. None are exclusive: a simple transaction may involve several of these, and all of them contribute to the investment process. It is therefore essential that sound overall economic conditions prevail in order for investment to flow adequately.

Note 3:

The regional clearing houses should be based on regional nodes, collecting and processing regional data and disseminating data from other regions.

Note 4:

The regional clearing houses are referred to in this text as "active," as they take the initiative in identifying the needs of the users and seek information accordingly. The disseminated information would highlight and detail concrete cases where environmentally sound technologies were successfully developed and implemented. The clearing houses would also, as required, refer the user to sources of advice, training and technologies, thus facilitating the establishment of joint ventures and partnerships of various kinds.

Note 5:

Present international clearing house activities include:

- UNEP/International Cleaner Production Information Clearinghouse (ICPIC) for Cleaner Production Technologies (this clearing house, now also used to transfer information of CFC-free technologies as part of the Montreal Protocol framework, will be creating regional nodes);

- OZONETT, an international private clearing house on CFC-free technologies, which is being linked to ICPIC;

- CADETT and other International Energy Agency (IEA) clearing houses on energy efficient technologies, which collect and disseminate information for OECD countries.

Note 6:

The value of patented information is limited if it is not accompanied by corresponding trade secrets. However, trade secrets or know-how are not part of the disclosure contained or required in a patent document. Generally, the more complex the technology is, the greater the likelihood that it cannot be fully exploited without possession of the proper know-how.

Note 7:

For instance, for any given economic sector, regional organizations active in the field could add an active clearing house function and thus form part of the international information network described. When this is unfeasible, efforts should be made to institutionalize emerging groups that could evolve into such clearing houses.

Note 8:

The acquisition of the right to exploit a patented invention by means of a compulsory or non-voluntary license does not constitute a purchase. A compulsory license is a right of exploitation given without the consent of the patent owner, who is not likely to part with the know-how when such a license is issued. The compulsory license is a measure designed to be a remedy on the grounds of public interest, against refusal to grant licenses or to grant them on reasonable terms by a patent owner.

Note 9:

A critical mass of research and development capacity is crucial to the effective dissemination and use of environmentally sound technologies and their generation locally. Education and training programmes should reflect the needs of specific goal-oriented research activities and should work to produce environmentally literate specialists with an interdisciplinary outlook. Achieving this critical mass involves building the capabilities of craftpersons, technicians and middle-level managers, scientists, engineers and educators, as well as developing their corresponding social or managerial support systems. Transferring environmentally sound technologies also involves innovatively adapting and incorporating them into the local or national culture, a process that faces many barriers, technical and otherwise.

Innovation is the process by which existing and new scientific knowledge and prior technological advances are combined with other factors in a society to generate economic activity and/or social development. It is a holistic process which brings together in a new synthesis many different elements adapted to a local context, and it is born of an entrepreneurial approach and attitudes. It is the entrepreneur, in the public as well as the private sector, who "brings it all together" in fulfilment of some well-defined vision or goal ... Innovators have to be risk-takers, so the policy climate in the society in which they operate should be one which supports and which rewards risk-taking. [A/CN.11/91]

Note 10:

Such a framework would facilitate initiatives from both developing and developed countries to stimulate the research, development and transfer of environmentally sound technologies, often through partnerships within and among countries and between the scientific and technological community, industry and Governments.

Note 11:

The EEC/EUREKA programme exemplifies how initiatives to foster the development, transfer and partnership of environmentally sound technologies in the developing world might be implemented. The global task force guiding this framework could be serviced by a small multilateral secretariat. Arrangements could be established by attributing such functions to already existing bodies.

Note 12:

Specifically, the functions of the national task forces would include cooperation with the global task force, implementation of national initiatives, promotion of national partnerships in the research, development and transfer of technology and international partnerships between Government and industry, and acknowledgement, support and maintenance of promising local environmentally sound technologies.

Note 13:

These regional centres would maintain links with national centres. Consideration should be given to supporting these regional centres with regional task forces whose members would be drawn from national Governments, regional financial institutions and other regional institutions, including United Nations regional commissions, as well as independent experts. Similar to the regional centres, the operation of the regional task force might be covered by augmenting additional functions to existing regional institutions. This would be particularly appropriate where the focus coincides with the ongoing activities of a regional organization.

Note 14:

These centres could, in principle, provide advice and training for specific national situations and promote the building up of national capacity in environmentally sound technology assessment.

Note 15:

Given the nature of the activities described in paragraphs 21 to 24, there are no solid grounds for estimating their costs. The funding for the activities of the global and possibly regional task forces and their secretariats would be drawn from existing and new international funding facilities, as well as contributions from regional organizations, from Governments, foundations, corporations and in kind.

Note 16:

The work programme of the task forces could involve:

(a) specific national plans in support of proposals submitted by national Governments;

(b) pre-feasibility studies for priority areas, with due regard to the impact on women's economic roles;

(c) special regional studies and implementation programmes.